

We claim:

1. An apparatus suitable for producing shaped bodies comprising thermoplastic polymers from monomers which form such polymers in a batch process, comprising
  - a) at least one reactor suitable for the batchwise preparation of a melt of a thermoplastic polymer from monomers which form such a polymer,
  - b) a piping system suitable as circulation line for the melt of the thermoplastic polymer and
  - c) at least one apparatus suitable for the production of shaped bodies from the melt of a thermoplastic polymer,wherein
  - the reactor or reactors a) is/are connected to the piping system b) and
  - the apparatus or apparatuses c) is/are connected to the piping system b).
2. An apparatus as claimed in claim 1, wherein the reactor or reactors used in a) is/are suitable for the reaction at a pressure in the range from 0 to 3 MPa and at a temperature in the range from 100 to 380°C.
3. An apparatus as claimed in claim 1 or 2, wherein the piping system b) additionally has a conveying device suitable for moving the melt of the thermoplastic polymer in the longitudinal direction of the piping system.
4. An apparatus as claimed in any of claims 1 to 3, wherein a granulator is used as apparatus c).
5. An apparatus as claimed in any of claims 1 to 3, wherein a spinning apparatus is used as apparatus c).
6. An apparatus as claimed in any of claims 1 to 3, wherein an apparatus for producing a film is used as apparatus c).
7. An apparatus as claimed in any of claims 1 to 6, wherein the mean average pipe diameter in the piping system b) between the first reactor a) and the last apparatus c) viewed in the

flow direction is equal to or greater than the mean average pipe diameter between the last apparatus c) and the first reactor a) viewed in the flow direction.

- 5 8. An apparatus as claimed in any of claims 1 to 6, wherein the ratio of the mean average pipe diameter in the piping system b) between the first reactor a) and the last apparatus c) viewed in the flow direction to the mean average pipe diameter between the last apparatus c) and the first reactor  
10 a) viewed in the flow direction is in the range from 1:1 to 10:1.
9. An apparatus for producing shaped bodies comprising thermoplastic polymers from monomers which form such polymers  
15 in a batch process in an apparatus as claimed in any of claims 1 to 8, which comprises
- a) preparing a melt of a thermoplastic polymer batchwise from monomers which form such a polymer in at least one  
20 reactor,
- b) feeding the melt of the thermoplastic polymer obtained in step a) into a piping system suitable as circulation line for the melt of the thermoplastic polymer and moving it  
25 through the piping system at a mean average wall shear rate in the range from 0.1 to 100 s<sup>-1</sup> and a mean average flow velocity in the range from 0.1 to 100 cm/s,
- c) taking the melt of the thermoplastic polymer from the piping system b) and producing shaped bodies from the thermoplastic polymer.  
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10. A process as claimed in claim 9, wherein monomers selected from the group consisting of adipic acid,  
35 hexamethylenediamine, terephthalic acid, xylylenediamine, hexamethylenediammonium adipate, caprolactam and mixtures thereof are used in step a).
11. A process as claimed in claim 9, wherein  
40 hexamethylenediammonium adipate is used as monomer in step a).
12. A process as claimed in any of claims 9 to 11, wherein the temperature of the melt of the thermoplastic polymer in the  
45 piping system used in step b) is from 0 to 60°C above the

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melting point of the thermoplastic polymer determined in accordance with ISO 11357-1 and 11357-3.

13. A process as claimed in any of claims 9 to 12, wherein, in  
5 step c), melt of the thermoplastic polymer is taken  
continuously from the piping system.

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Production of shaped bodies comprising thermoplastic polymers

Abstract

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An apparatus suitable for producing shaped bodies comprising thermoplastic polymers from monomers which form such polymers in a batch process comprises

- 10 a) at least one reactor suitable for the batchwise preparation of a melt of a thermoplastic polymer from monomers which form such a polymer,
- b) a piping system suitable as circulation line for the melt of
- 15 the thermoplastic polymer and
- c) at least one apparatus suitable for the production of shaped bodies from the melt of a thermoplastic polymer,

20 wherein

the reactor or reactors a) is/are connected to the piping system  
b) and

25 the apparatus or apparatuses c) is/are connected to the piping system b),

and an apparatus for producing shaped bodies comprising thermoplastic polymers in such an apparatus.

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